

**INFORMATION DISCLOSURE STATEMENT**

Applicant	:	Raaijmakers et al.
App. No.	:	Unknown
Filed	:	Herewith
For	:	CONFORMAL LINING LAYERS FOR DAMASCENE METALLIZATION
Examiner	:	Unknown
Group Art Unit	:	Unknown

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Enclosed is form PTO-1449 listing 100 references that are of record in U.S. patent application No. 09/644,416, filed August 23, 2000, which is the parent of this divisional application, and is relied upon for an earlier filing date under 35 U.S.C. § 120. Copies of the references are not submitted pursuant to 37 C.F.R. § 1.98(d).

This Information Disclosure Statement is being filed with an RCE or within three months of the filing date of this application and no fee is required in accordance with 37 C.F.R. § 1.97(b)(1), (b)(2), or (b)(4).

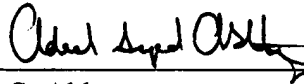
Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: \_\_\_\_\_

December 12, 2003

By: \_\_\_\_\_



Adeel S. Akhtar  
Registration No. 41,394  
Attorney of Record  
Customer No. 20,995  
(415) 954-4114

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  <b>INFORMATION DISCLOSURE STATEMENT          BY APPLICANT</b>  (USE SEVERAL SHEETS IF NECESSARY)	ATTY. DOCKET NO. ASMMC.003DV1	APPLICATION NO. Unknown
	APPLICANT Raaijmakers et al.	
	FILING DATE Herewith	GROUP Unknown

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE)
	1.	4,058,430	11/15/77	Suntola et al.	156	611	11/25/75
	2.	4,413,022	11/01/83	Suntola et al.	427	255.2	06/21/79
	3.	4,747,367	05/31/88	Posa	118	715	06/12/86
	4.	4,761,269	08/02/88	Conger et al.	422	245	06/12/86
	5.	5,674,781	10/7/97	Huang et al.	437	192	2/28/96
	6.	5,711,811	01/27/98	Suntola et al.	118	711	
	7.	5,879,459	3/9/99	Gadgil et al.			
	8.	5,904,565	5/18/99	Nguyen et al.			
	9.	5,916,365	6/99	Sherman			
	10	5,933,761	8/3/99	Lee	438	783	7/10/98
	11	6,037,258	3/14/00	Liu et al.	438	687	3/7/99
	12	6,048,790	4/00	Iacoponi et al.			
	13	6,069,068	5/30/00	Rathore et al.	438	628	10/8/97
	14	6,077,775	06/20/00	Stumborg et al.			
	15	6,083,818	07/04/00	Stumborg et al.			
	16	6,093,638	7/00	Cho et al.			
	17	6,100,184	8/00	Zhao et al.			
	18	6,139,700	10/31/00	Kang et al.	204	192.17	9/30/98
	19	6,146,517	11/14/00	Hoinkis	205	186	5/19/99
	20	6,181,012	1/30/01	Edelstein et al.	257	762	4/27/98
	21	6,184,128 B1	2/6/01	Wang et al.			
	22	6,188,134 B1	2/13/01	Stumborg et al.	257	751	8/20/98
	23	6,200,893	3/01	Sneh			
	24	6,203,613	3/02	Gates et al.			
	25	6,207,567	3/01	Wang et al.			

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	26	6,225,213	5/01	Urabe			
	27	6,270,572 B1	8/7/01	Kim et al.			
	28	6,287,965	9/11/01	Yokoyama et. Al.	438	624	4/23/98
	29	6,303,523	10/16/01	Cheung et al.			
	30	6,342,448	½	Lin et al.			
	31	6,358,829 B2	03/2002	Yoon et al.	438		
	32	6,351,039 B1	02/2002	Jin et al.	257		
	33	6,368,954 B1	4/9/02	Lopatin et al.	438	627	7/28/00
	34	6,482,733	11/02	Raaijmakers et al.			
	35	US 2001/001742 A1	5/24/01	Huang et al.	438	710	12/18/98
	36	US 2001/0034123 A1	10/25/01	Jeon et al.	438	643	4/6/01

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	37.	DE 196 27 017 A1	1/9/97	Germany				
	38.	DE 198 20 147 A1	1.7.99	Germany				
	39.	KR 2000054970	1999	Korea				
	40.	JP 2001217206 A2	8/10/01	Japan				
	41.	WO 96/17107	06/06/96	PCT				
	42.	WO 99/41423	19.08.99	PCT				
	43.	WO 9962109	12/1/99	PCT				
	44.	WO 0013207A2	3/9/00	PCT				
	45.	WO 0015866A1	3/23/00	PCT				
	46.	WO 0015881A2	3/23/00	PCT				
	47.	WO 0016377A2	3/23/00	PCT				

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							YES	NO
	48.	WO 0022659A1	4/20/00	PCT				
	49.	WO 0055895A1	9/21/00	PCT				
	50.	WO 0063957A1	10/26/00	PCT				
	51.	WO 0079576A1	12/28/00	PCT				
	52.	WO 0136702A1	5/15/01	PCT				
	53.	WO 0145149A1	6/21/01	PCT				
	54.	WO 0178123A1	10/18/01	PCT				
	55.	WO 0011721	3/02/00	PCT				
	56.	WO 0075964 A2	12/14/00	PCT				
	57.	WO 0115220	3/01/01	PCT				
	58.	WO 0166832	9/13/01	PCT				
	59.	WO 0178124A1	10/18/01	PCT				
	60.	WO 0199166A1	12/27/01	PCT				

EXAMINER INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)	
	61.	B. Abeles and T. Tiedje, "Amorphous Semiconductor Superlattices," <u>Physical Review Letters</u> , 21 November 1983, Vol. 51, No. 21, pp. 2003-2006
	62.	Bedair, S.M. "Selective area and sidewall growth by atomic layer epitaxy" <u>Semicond Sci. technol.</u> Vol 8:1052-1062 (1993)
	63.	Csaba Döscö, Nguyen Quoc Khanh, Zsolt Horváth, and István Bársony, Research Institute for Materials Science – ATKI, H-1525 Budapest, Hungary; Mikko Utriainen, Sari Lehto, Minna Nieminen, and Lauri Niinistö, Laboratory of Inorganic and Analytical Chemistry, Helsinki University of Technology, FIN-02150 Espoo, Finland, "Deposition of Tin Oxide into Porous Silicon by Atomic Layer Epitaxy," <u>J. Electrochem. Soc.</u> , February 1996, Vol. 143, No. 2, pp. 683-687
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	65.	George et al. "Atomic layer deposition of tungsten on oxide surfaces" <u>Book of Abstracts, 219<sup>th</sup> ACS Nat'l Meeting</u> , SF, CA March 26-30 2000 published by American Chemical Society, Washington D.C.
	66.	L. Hiltunen, M. Leskelä, M. Mäkelä, L. Niinistö, E. Nykänen and P. Soininen, "Nitrides of Titanium, Niobium, Tantalum and Molybdenum grown as Thin Films by the Atomic Layer Epitaxy Method," <u>Thin Solid Films</u> , 1988, Vol. 166, pp. 149-154.
	67.	Y. Horiike, T. Ichihara, and H. Sakaue, "Filling of Si oxide into a deep trench using digital CVD method," <u>Applied Surface Science</u> , 1990, Vol. 46, pp. 168-174
	68.	Juppo et al. "Deposition of copper films by an alternate supply of CuCl and Zn" <u>J. Vac. Sci. Technol. A</u> 15(4):2330 (1997)

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	69.	Takeshi Kaizuka, Hiroshi Shinriki, Nobuyuki Takeyasu, and Tomohiro Ohta, "Conformal Chemical Vapor Deposition TiN(111) Film Formation as an Underlayer of Al for Highly Reliable Interconnects," <u>Jpn. J. Appl. Phys.</u> , 1994, Vol. 33, pp. 470-474.
	70.	Takamaro Kikkawa, Hidemitsu Aoki, Eiji Ikawa, and John M. Drynan, "A Quarter-Micrometer Interconnection Technology Using a TiN/Al-Si-Cu/TiN/Al-Si-Cu/TiN/Ti Multilayer Structure," <u>IEEE Transaction on Electron Devices</u> , February 1993, Vol. 40, No. 2, pp. 296-302
	71.	T. Kikkawa and K. Kikuta, "Al-Si-Cu/TiN multilayer interconnection and Al-Ge reflow sputtering technologies for quarter-micron devices," <u>SPIE</u> , 1992, Vol. 1805, pp. 54-64.
	72.	Kim et al., "Applicability of ALE Tin films as Cu/Si diffusion barriers" <u>Thin Solid Films</u> 372(1):276-283 (2000)
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	74.	Klaus et al., "Atomic LAYER Deposition of Tungsten Nitride Films Using Sequential Surface Reactions" <u>J. Electrochem Soc.</u> 147(3): 1175-1181 (2000)
	75.	J.W. Klaus, O. Sneh, A.W. Ott and S. M. George, "Atomic Layer Deposition of SiO <sub>2</sub> Using Catalyzed and Uncatalyzed Self-Limiting Surface Reactions", <u>Surface Review and Letters</u> , Vol. 6, Nos. 3 & 4 (1999) pp. 435-448.
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	77.	Koo et al., "Study on the characteristics of Ti AlN thin film deposited by atomic layer deposition method" <u>Journal of Vacuum Science &amp; Technology, A: Vacuum Surfaces, and Films</u> 19(6), 2931-2834 (2001)
	78.	Kaupo Kukli, Mikko Ritala, and Markku Leskelä, "Atomic Layer Epitaxy Growth of Tantalum Oxide Thin Films from Ta(OC <sub>2</sub> H <sub>5</sub> ) <sub>5</sub> and H <sub>2</sub> O," <u>J. Electrochem. Soc.</u> , May 1995, Vol. 142, No. 5, pp. 1670-1674.
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	80.	Martensson et al., "Atomic layer pitaxy of copper" an ab initio investigation of the CuCl/H <sub>2</sub> process III. Reaction barriers" <u>Appl. Surf. Sci.</u> 157(1):92-100 (2000)
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	87.	Jae-Sik Min, Hyung-San Park, Wonyong Koh, Sang-Won Kang, "Chemical Vapor Deposition of Ti-Si-N Films with Alternating Source Supply, <u>Mat. Res. Soc. Symp. Proc.</u> Vol. 564, 1999 Materials Research Society, pp. 207-210
	88.	Jae-Sik Min et al., "Metal-organic atomic-layer deposition of titanium-silicon-nitride films," <u>Applied Physics Letters</u> , Vol. 75, No. 11, pp. 1521-1523 (1999).
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	95.	Rossnagel et al., "Plasma-enhanced atomic layer deposition of Ta and Ti for interconnect diffusion barriers" <u>J. Vac. Sci. Technol.</u> 18(4):2016-2020 (2000)
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